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# USSR Report

TRANSPORTATION

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## AvtoVAZ ASSOCIATION ACHIEVEMENTS, MODERNIZATION PLANS

## Recent Production Figures

Moscow ZA RULEM in Russian No 10, Oct 85 p 1

[Article under the heading: "The 27th CPSU Congress is At Hand: The Tempo is Dictated by the Times"]

[Exerpts] The 11th Five Year Plan is nearing completion. Through the efforts of the party and all the people, the country has risen to a new stage of economic and social development. Today, while summing up the results and outlining the plans for the next five years, we stand in the ranks with the finest of the labor collectives, which are setting the tone with their honest, enterprising, rhythmic work. The AvtoVAZ [Volga Association for Passenger Car Production] has numbered among them for many years.

During four years of the 11th Five Year Plan nearly 2,900,000 vehicles were manufactured in Togliatti, including 13,000 above the plan. In May the collective of the motor vehicle works assembled the nine-millionth vehicle. One can judge the scale of automobile output over the years 1981-1984 from the table presented below. New models, the VAZ-2107 and VAZ-2104, were introduced, and their part in the program is growing as planned. At the same time, production of the very earliest models, the VAZ-2101 and VAZ-2103, has been discontinued. And, mass-production of the country's first front-wheel-drive automobile, the VAZ-2108, has begun.

## Output of VAZ Automobiles in the 11th Five-Year Plan

Models	1981	1982	1983	1984
2101	104,330	42,737	10,745	--
21011, 21013	181,589	157,893	169,870	170,535
2102	50,122	50,385	50,700	49,972
2103	104,532	41,551	40,070	435
2104	--	--	--	1,665
2105	99,597	169,961	175,065	143,728
2106	114,502	178,944	176,293	217,737
2107	--	5,714	28,581	69,502
2108	--	--	--	55
2121	65,114	66,850	67,262	69,115
Total	719,786	714,035	718,586	722,744

It has been decided to reduce the period of preparation for production of base models from eight to five years, and to take up production of a family of front-wheel-drive automobiles based on the VAZ-2108, in which the latest achievements of engineering and technology are utilized. Production of the first group of vehicles of an especially small class, the Oka, will begin; and the first experimental industrial lots of diesel engines and VAZ-2110 passenger cars have been manufactured. The VAZ workers have accepted the obligation to produce, over and above their set tasks, output worth 150 million rubles--which includes 12,000 vehicles--without using additional reserves of sheet-metal.

It has been planned to modernize the vehicles in the VAZ-2105 and VAZ-2107 families, and also the VAZ-2121, "Neva". Fuel requirements for VAZ automobiles will be reduced by an average of 10 percent, and use of metal on each vehicle will be reduced by 80 kg. The operating life and reliability of the automobiles will be increased as well.

#### General Director on Plans

Moscow ZA RULEM in Russian No 11, Nov 85 pp 1-2

[Article by V. Isakov, AvtoVAZ Association general director, under the heading: "The 27th CPSU Congress is at Hand: VAZ's Fourth Five Year Plan"]

[Excerpt] Today, on the eve of the party congress, the collective at the Volga Association for Passenger Car Production, AvtoVAZ, takes great pleasure in summing up the results of development in the 11th Five-Year Plan. AvtoVAZ, an automotive complex which in its creation has absorbed the latest achievements of engineering and technology, is developing dynamically and systematically. In terms of quantity, this is convincingly expressed by the rhythm of the assembly line: one automobile every 22 seconds! Manufacturing automobiles at such a rate, the enterprise is continually renewing its production. For example, in the five-year-plan now coming to an end, a principally new model, the VAZ-2108, has been put on the assembly line. Its creation was the strategic goal for which the association's collective has devoted intense efforts. Production spaces comprising an area of over 150,000 square meters have already been built; and more than 2,000 units of technological equipment, including 52 automatic lines, have been installed. At the end of 1984 the state commission accepted a capacity of 35,000 VAZ-2108 automobiles for the first series.

Work on taking up production of the new models has had no affect on basic production rhythms, or on fulfilling current plans. In the decisive year of the current five-year-plan, it is planned to manufacture more than 720,000 vehicles, including 1,300 more than the plan calls for, in connection with socialist obligations accepted.

Products with the VAZ trademark enjoy a prestigious position not only among Soviet purchasers, but among foreigners as well. Today more than 3 million of our vehicles are in use in nearly 80 countries.

We realize that improving vehicle design and production technology, and increasing their quality may be accomplished only if we are guided by a precise program for the future. In developing this program, we proceeded from the need to renew automobile models more rapidly, and to steadily improve their economy, reliability and comfort. At the same time progressive technology is to be introduced widely, in order to ensure the corresponding growth rates in labor productivity, along with high-quality production.

An intensive new program is envisaged for the new five-year plan. While striving to respond to the instructions of the CPSU Central Committee with deeds, after a detailed analysis we have come to the conclusion that in the 12th Five Year Plan the association can and must reach out for greater goals than were originally envisaged.

How do these look in concrete numbers? It was decided to reduce the preparatory period for introduction of new models from eight to five years. There are plans to take up production of a new family of vehicles every five years, the production volume of which will equal one-third of the association's annual program.

In the 12th Five-Year Plan we are developing the production of a family of front-wheel-drive vehicles. It includes modifications with engines of various displacement volumes and horsepower, with three- and five-door bodies, and with different variants of equipment and trimmings. The high level of design and technological decisions permits us to orient ourselves on significantly increasing the quality and reliability of the new family of automobiles.

Modernization of the vehicles produced has been planned for the 12th Five Year Plan. Its goals are further reduction of fuel consumption, reduction of toxicity and the noise level in the passenger compartment, and improving aerodynamic qualities. The outward appearance of the vehicles and their interiors will be renewed. It is also planned to take up production of a model related to the first group of the especially-small class. Readers of this magazine are already aware of the start of work on this vehicle, the need for which was prompted by life itself. Experimental models are currently undergoing testing, and in the new five-year plan VAZ, with the cooperation of KamAZ [Kama Motor Vehicle Works] and the Serpukhov Motor Works, will commence serial production of this automobile.

It must be made clear, that the introduction of principally new models in compressed periods would have been impossible without the timely creation of sections for manufacturing small serials. These well-equipped sections are capable of manufacturing up to 200 experimental automobiles per year; moreover, design modifications based on test results are introduced effectively. In the 12th Five Year Plan it is planned to develop these capacities sufficiently to manufacture 300 vehicles per year.

In accordance with long-term guidelines, designers are working on other promising models, the manufacture of which is planned for the 13th Five Year Plan; in other words, they are creating a design portfolio which extends right up to the year 2000.

Along with taking up production of front-wheel-drive models, vehicles are still being produced in the classical configuration, and they are being modernized. The improvements, which will be introduced in full volume by the end of the 12th Five Year Plan, will affect not only the engine, transmission, and electrical equipment, but the outward appearance and the interior as well.

Many people are interested in a VAZ passenger car with a diesel engine. Its experimental models, including some with a turbo-supercharger, are undergoing testing. And although there are a lot of problems on the path to serial production, it has been decided to produce an experimental-production lot of these economical motors in the 12th Five Year Plan.

Progress in automobile design is interrelated with intensive renewal of the technology of production, and with the introduction of highly-effective labor processes and methods. At the same time we have a higher goal in mind: solving not only the technical but also the social tasks. Specifically, it is planned to improve working conditions, and to alleviate and gradually eliminate hard, monotonous manual labor. As far as growth of production volume is concerned, it is provided for in the 12th Five Year Plan while simultaneously reducing the number of workers.

In this connection, automation of production, and flexible systems capable of quickly being switched to parts for modernized components and units, are becoming more and more important: such, for example, as the automatic lines for machining the cylinder blocks and the crankshaft for the VAZ-2108 engine, which are already in operation.

Automatic assembly and welding operations--the most labor-intensive in the manufacturing of an automobile--are to be further developed in the five-year plan. In addition to those which already exist, it is planned to introduce 15 lines for assembly of the steering mechanism, the transmission housing, the exterior linkage, and the drive wheel. The operator's role here is reduced to setting up the parts ahead of time. Industrial manipulators also appear for assembling the automobile.

The most progressive equipment is being put into operation in welding production. For example, for the side panels of the body, there are flexible automatic lines with programmed robots, by means of which one can weld parts of several models of automobiles. In combination with the high degree of technology of the new design (4,500 weld points as opposed to 7,300 on the bodies of earlier models), this permits reducing labor-intensity of operations by 30 percent, bringing the level of automation for welding to 96 percent. Behind these figures stand not only the workers who have been liberated from hard work which demands intense concentration, and not only the reduction of the number of workplaces; welding with the aid of robots also provides a higher-quality auto body.

Along with improved technology, processes are being ever more widely introduced which reduce the volume of mechanical machining or entirely eliminate it; waste materials and energy consumption is reduced; and materials in short supply can be replaced with those more readily available. We are



speaking about powder metallurgy, about three-dimensional cold stamping, about finishing cutting, and others. The switch to production of an aluminum radiator for the VAZ-2108 (in the future it will be installed on all automobiles) eliminates the use of copper, tin, and brass, and makes the labor-intensive and dangerous process of soldering unnecessary; in sum, it frees more than 100 people for other work.

Progress touches on literally all areas of machining, cutting and casting, painting and heat treatment; transport and warehouse facilities will be developed--hence the necessity to develop in the association capacities for manufacturing technological equipment, and lathes in first priority. By the end of the five-year plan now ending, it is planned to manufacture through our own efforts 5,800 automatic manipulators and 100 robots for contact welding, and in the 12th Five Year Plan, 6,500 and 930 respectively.

But no matter what sort of efforts we make in the sphere of designing and producing automobiles, today they in and of themselves do not guarantee the vehicle will be successful with the consumers; for this the manufacturing plant must also provide for their technical servicing. In the 11th Five Year Plan the number of SATs [special vehicle service centers] and STO [technical service stations] in our association increased from 4,600 to 5,600, and the volume of services grew from 92.1 to 179.2 million rubles. In the 12th Five Year Plan service will be developed with no less intensity: stations will be added with more than one thousand service points, and the volume of services will reach 230 million rubles.

We realize, however, that there are many unresolved problems in the service sphere, and this has given rise to justifiable complaints on the part of VAZ automobile owners, and critical remarks in the press. The association's administrators together with the soviet and party organizations in the localities are continuing work on improving the organization, improving the quality of repairs and services, and improving the standards of relations with the clients. At the present time the AvtoVAZtekhnobsluzhivaniye [probably, Volga Automobile Manufacturing Association Technical Services] system is being reorganized for the purpose of ensuring that its administration is carried out in a more specific manner. Additionally, the spare parts problem must be solved. In the new five-year plan, production volume of spare parts will grow by more than 50 percent at the association; moreover, special attention will be devoted to those components and parts which are presently in short supply. And the volume of overhaul-repair of parts and units will increase several times.

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## MOTOR VEHICLES AND HIGHWAYS

### DEPUTY MINISTER ON PLANNED CAR, MOTORCYCLE SERVICING, PARTS

Moscow ZA RULEM in Russian No 2, Feb 86 pp 6-7

[Article by V. Konovalov, deputy minister, USSR Motor Vehicle Industry: "In the Interests of Vehicle Enthusiasts"]

[Text] In the preparation period for the 27th party congress the Politburo of the CPSU Central Committee examined and approved a complex program for the development of the production of consumer goods and the services sphere for the 1986-2000 period. This document, which was thoroughly reflected in the project Basic Trends in the Economic and Social Development of the USSR for 1986-1990 and the Period up to 2000, contains specific plan quotas for the realization of of the program goals of our party. The CPSU considers it a task of primary importance to completely satisfy the growing demand of the population for high quality and various consumer goods. Included herein are passenger cars, motorcycles and mopeds.

In the 12th Five-Year Plan the motor vehicle industry will shift to the production of new passenger-car models with improved technical parameters and will organize production of instruments and facilities that aid in their operation. The range of motorcycles will be expanded and their operational qualities improved.

The real income of workers grows from year to year, and their buying power expands. Soviet citizens are much better supplied than before with primary necessities, and at the same time the demand is increasing for complex technology and individual means of transport. At the present time city and village workers already have more than 30 million cars and motorcycles. For the servicing and repair of this huge fleet of personal transport we have set up a broad network of large and small STO [service stations] and a system for the production and distribution of spare parts, accessories and operating materials. The volume of services offered to private car owners is constantly growing. In the concluding year of the 11th Five-Year Plan it came close to 500 million rubles.

The tasks of motor vehicles engineers in the area of services are also determined by the Basic Trends in Economic and Social Development of the USSR for 1986-1990 and the Period up to 2000.

It is known that at the present time the demand for these services exceeds the supply. In speaking about vehicle service, the main reasons for lines at STOs

lie primarily in an insufficiency of production capabilities--up until the 1960's maintenance and repair services for individual motor vehicles as they are now understood virtually did not exist; they began to be established only in the 1970's after the rapidly growing fleet of vehicles. Together with this, the commissioning of new service enterprises has so far only partially solved the problem if one considers the constantly aging fleet of vehicles and the growth in demand for complicated body and engine repairs. These disproportions in the rates of growth of the demand for services and the establishment of its production capabilities are complicated by the shortage of a whole range of spare parts that are needed both in the daily operation of equipment and, moreover, for its repair. To a certain extent the shortage is affected by a reduction in the quality of manufacture of individual parts, causing premature wear and, naturally, increased demand for them. Many omissions are observed in the organization of work at the very service enterprises where there are reserves for the substantial growth of quantity and quality of services provided to drivers.

All these problems are under the unrelenting control of Minavtoprom, which controls 62 percent of the capabilities for maintenance and repair of cars belonging to citizens and is responsible for conducting technical policy in this area of public services.

A complex program for the development of consumer-goods production and services for 1986-2000, first developed in our country with a view to bringing about a fundamental improvement in the satisfaction of the diverse needs of workers, and the Resolutions of the CPSU Central Committee and the USSR Council of Ministers that were adopted during its development project specific ways of improving the operation of motor vehicle service. I will name the most important trends in this area: further development of production capabilities, steadily raising the production of spare parts for passenger cars, and improving the organizational forms of all the work of motor vehicle maintenance.

In recent years more than 2000 enterprises have been built and many millions of rubles worth of equipment has been purchased for the diagnosis, maintenance and repair of all makes of domestic passenger cars. All in all around the country there are more than 100,000 specialists working in the auto service industry, and in a year more than 8 million vehicles, needing maintenance and complicated repairs, go through the work areas of service stations.

The plans for the new five-year plan stipulate the construction of several hundred STOs of domestic design and of fully-equipped service stations purchased in the Polish People's Republic and the establishment of maintenance stations and car washes at filling stations, garage cooperatives and open parking lots where no fewer than 50 cars are stored. Many enterprises that were set up in previous years at adapted premises will be expanded and rebuilt. On the whole, motor vehicle service capabilities around the country will grow by more than one third.

This is an important factor, but a more rational, proprietary attitude toward already established capabilities should play no less a role. I will cite an example. From one working site in Latvia, with the necessary equipment, drivers are provided with 42,000 rubles worth of services annually. In Armenia this figure is 21,800, and the average over the entire service system is 26,000 rubles.

The difference is appreciable and it is not difficult to imagine how great the potential still is for increasing the productivity of our motor vehicle service enterprises.

Another important reserve for more complete satisfaction of drivers' demands for maintenance and repairs of personal vehicles is increasing the production of spare parts. In spite of the fact that more than a half billion rubles worth of operating materials and spare parts was sold to individual owners through the vehicle service system in 1985, there is still a shortage of certain of them. It is precisely this that frequently is the reason for refusals to take vehicles for repairs at STO, that generates unhealthy relations between service station workers and clients, and that facilitates violations of the law from time to time.

Plan quotas for the 12th Five-Year Plan are oriented toward completely satisfying, by 1990, enterprise demands in terms of maintenance and repairs of vehicles belonging to citizens, as well as the demands of the retail trade for spare parts.

A feature of these plans is the specific range of production of scarce parts and assemblies with a precise determination of their quantity for each year of the five-year plan.

Simultaneously with the production of spare parts, rebuilding of worn out parts, assemblies, and units will develop at increasing rates. This work has already been begun. The plan for 1986 stipulates the rebuilding of more than 45 million rubles worth of parts, and by 1990 the volume of rebuilding will practically triple.

The ministries of the petroleum refining and petrochemical industries of the USSR and the chemical, forestry, wood-pulp and paper, and woodworking industries have been ordered, in the coming five-year plan, to manufacture the necessary quantities of tires and rubber products, parts from plastic, paper and board, batteries, enamels and vehicle preparations for motorists. Carrying out these measures should allow the satisfaction of normal demands for motor vehicle service and spare parts by 1988, and the establishment of supplies sufficient for the sale of parts through retail trade channels by 1990.

In order to reduce the urgency of the shortage of such parts as air and oil filters, oil-thrower caps for Zhigulis, repair-size piston rings, and others, a resolution was adopted in the course of 1986-1987, when additional capabilities will be deployed in terms of their production at domestic plants and a large quantity of imported spare parts will be purchased for Minavtoprom.

Enterprises and other branches of industry should make their own contribution toward satisfying motorists' demands for certain spare parts. Existing government resolutions on the production of vehicle parts as goods for public consumption allow associations and plants, with significant economic advantage for themselves, to facilitate the solution of the spare-parts problem. In addition, enterprises and organizations for whom the provision of paid services is not a primary activity are now permitted to offer such services to their workers and other citizens, which makes it possible to maintain and repair personal vehicles where the vehicle service system is so far insufficiently developed.

Right now USSR Minavtoprom--its republic and firm directorates, Avtotekhhobsluzhivaniye, RSFSR Minavtotrans, the public services ministries of several republics, and Mosgorispolkom--are involved in the servicing and repair of personal vehicles. Their capabilities, organizational structures, potential for training highly qualified specialists, and acquisition of equipment are far from equal. Thus, just those enterprises under Minavtoprom, which comprise 62 percent of motor vehicle service capacity, provide 70 percent of the total volume of services. It is obvious that the existing control structure for the thousands of large and small service enterprises requires further improvement, for more efficient material-technical supply of STOs and vehicle centers, for carrying out a unified technical policy, and for raising the level of service.

Service should be oriented toward the so-called ordinary vehicle owner, who is able to do only the simplest maintenance himself and who turns to a STO for all other work. Such motorists are the majority among the 12.5 million individual owners, and it is clear that this will still be the case by 1990, when the fleet of personal vehicles will have grown, according to calculations, to 16 million. In order to satisfy the service demands of such a mass of motorists, it is necessary to improve the very procedure for obtaining service from a STO. Today obtaining this service is connected with a number of formal complexities and large expenditures of time. The clients of large service stations and vehicle centers feel this most acutely.

In the coming five-year plan this task should be solved at all stages, beginning with the surrender of the vehicle at an STO and ending with its return to the customer, keeping in mind a sharp increase in the level of service, responsibility to the client, and establishment of a climate of trust, goodwill, and mutual respect.

Economic stimuli in the remuneration and evaluation of the labor of vehicle service workers, measures for strengthening discipline and increasing their personal responsibility have primary importance here. Along with authority control, it is necessary to strengthen public control of the activity of enterprises in motor vehicle service, to discover and realize potential for improving their operation for the more complete satisfaction of the demands of drivers. The program position of the CPSU--everything in the name of man and for the good of man--should in coming years also be filled with concrete support in that growing sphere of service that is motor vehicle maintenance.

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MOTOR VEHICLES AND HIGHWAYS

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IMPROVEMENTS IN ULYANOVSK MOTOR VEHICLE WORKS MODELS

Moscow AVTOMOBILNAYA PROMYSHLENNOST in Russian No 2, Feb 86 pp 22-23

[Article by A. V. Vinokurov of the Ulyanovsk Motor Vehicle Works imeni V. I. Lenin: "Updating UAZ [Ulyanovsk Motor Vehicle Works] Motor Vehicles"]

[Text] Beginning in May, 1985 the Ulyanovsk Motor Vehicle Works imeni V. I. Lenin began producing updated UAZ motor vehicles. The purpose of the updating is to improve their technical level (safe life, safety parameters, economical operation, comfort, and others), and that's why it affected practically all of their assemblies and systems. In this regard, the motor vehicles' layouts and technical characteristics were changed to a considerable degree. After updating, their models received new designations in accordance with classifications that are accepted in domestic motor vehicle manufacture (see table).

Table 1. UAZ Motor Vehicle Designations Before and After Updating

<u>Type of Motor Vehicle</u>	<u>Model Designation</u>		<u>Note</u>
	<u>Before Updating</u>	<u>After Updating</u>	
Station wagon with axles that have wheel reduction gears	UAZ-469	UAZ-3151	"01" (for example, UAZ-3151-01) is being added temporarily to the new model designations until completion of the entire updating volume
Station wagon with conventional axles	UAZ-469B	UAZ-31512	
Ambulance (on the basis of UAZ-469B)	UAZ-469BG	UAZ-3152	
Van	UAZ-452	UAZ-3741	
Ambulance	UAZ-452A	UAZ-3962	
Minibus	UAZ-452V	UAZ-2206	
Flat-bed truck	UAZ-452D	UAZ-3303	

Updating was accomplished gradually over a period of several years.

The most significant design changes were introduced during its first stage (1978-1982). They include new lighting engineering instruments (headlights and taillights, turn indicators and their lateral repeaters, license plate lights and backup lights) that meet today's safety requirements; telescopic shock absorbers (they became identical in the front and in the rear) that

significantly increase suspension reliability and extended service life and they improve the smoothness of motor vehicle operation; a safety interior rear view mirror with an anti-glare device (on the UAZ-469 and modifications); seven-leaf rear springs with increased elasticity (on the UAZ-469B); and a safety (split) steering column (on the UAZ-469 and modifications).

During the second stage in 1983, they began to install an updated UMZ-414 engine on motor vehicles with increased power up to 56.7 kilowatts and equipped with a 4-blade cooling system fan. The latter, in particular, led to a reduction in the noisiness of ATS [motor vehicle transport systems] that are being manufactured by the plant.

In addition, in 1983 a windshield washer with an electric drive gear that has a switch matched with the windshield wiper was assimilated by the enterprise, and that significantly improved the convenience of controlling these devices. Changes also affected chassis assemblies, in which some new bearings with improved load capacity and extended service life were used, as well as drive shafts and universal joints; they began to supply motor vehicles with new drive shafts that have a longer safe life than earlier. They are distinguished by an additional alignment in the splined joint and an improved radial-face spider bearing seal.

During the third stage in 1984, the UMZ-414 engine received a new model K-131 carburetor with an electronic control system that has a semiautomatic system to facilitate engine starting and warm-up, as well as an independent idling system with a forced idling economizer. The introduction of this carburetor made it possible to markedly reduce the fuel consumption of UAZ motor vehicles.

In the same year 1984 the cooling system was changed on the engine of station wagons; it became a closed one with an expansion tank and a pressurized radiator cap, and that made it possible to use liquids with low freezing points (anti-freeze and tosol) in the system. A system like this was introduced in 1985 on the UAZ-452 family of motor vehicles.

Beginning with the middle of 1984, the bodies of UAZ-469 motor vehicles and their modifications are being equipped with a reinforced canvas frame and seat belts. The frame has removable front and rear safety bars that are firmly connected with the body's window posts and sides by a bolted joint. Seat belts are installed on all seats except the extra rear ones; there are combined ones for the front and side rear seats and a belt-type for the middle rear seat.

At the same time, the plant also assimilated a new vehicle body heater with increased effectiveness (for the UAZ-469 and modifications), as well as a pre-starting engine heater that is supplied with fuel from the basic tanks by means of an auxiliary electric fuel pump (earlier there was a separate tank).

During the 1984-85 period, design changes also were introduced in the electrical equipment system of UAZ motor vehicles. Now it has been supplemented with an emergency signal system that provides for switching on all turn indicators simultaneously in a flashing mode irrespective of the position of the key in the ignition lock; it has a more effective RR-132A voltage regulator with a selector

switch for changing voltage tuning ranges, which will promote an increase in the service life of the storage battery, and a cluster of gears with plug connections for reducing the labor-intensiveness of assembly, service and repair.

During these years many vehicle body components were reinforced for the purpose of improving their safe life. In 1986 it's planned to introduce priming of station wagon bodies through a dipping method, and that will significantly improve their anticorrosive resistance.

The conversion of all UAZ models to a separate brake system became the most important and most labor-intensive updating measure with which the plant has been engaged in recently. For plant specialists this is a large concept that is associated not only with assimilating new brake system assemblies, but also with the alteration of bodies, frames and other motor vehicle systems.

The new brake system has a two-compartment brake master cylinder with two transparent tanks, a dual cycle fluid drive (a separate one for the front and rear axles), and a signal device that warns the driver about troubles or the unserviceability of one of the hydraulic drive cycles. Each of the cycles performs the function of a reserve brake system.

On the UAZ-3151-01 motor vehicle the brake master cylinder with a signal device is located under the hood (see the figure) in an area that is protected from dirt and is accessible for visual inspection. This gave rise to the necessity of using suspension clutch and brake pedals and hydraulic clutch drive, as well as relocating the storage battery to the right side of the body's front panel and changing the designs of the vehicle body's heater and the engine's prestarting heater. The clutch drive's master cylinder is located next to the brake cylinder.

On the UAZ-3741-01 models and other motor vehicles with a truck configuration the brake master cylinder is now located behind the facing of the vehicle body in an air duct at the front end of the frame, i. e. also in a location that is accessible for visual inspection. The pedal mechanism is new and the drive gear from the brake pedal to the brake master cylinder is accomplished through a system of tie rods and levers. All this stipulated the use of hydraulic clutch drive with the location of its master cylinder under the instrument panel. In this regard, the latter underwent changes--a large hole appeared in it for accessing the tank of the clutch drive's cylinder.

Work on improving UAZ motor vehicles continues. Ahead are a further improvement in their braking qualities, the introduction of a gear box that is completely synchronized in forward motion transmissions, an increase in the reliability of drive axles, a reduction in the noisiness and an increase in the economical operation of motor vehicles, and an increase in the safety and comfort of vehicle bodies.

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## RAIL SYSTEMS

### ALMA-ATA RAILROAD MANAGEMENT SCORED

Moscow GUDOK in Russian 11 Mar 86 p 2

[Unattributed article under the rubric "'GUDOK': Department of Effectiveness", "Alma-Ata Railroad: Management Style and Methods". 'GUDOK', September 5, 6 and 7, 1985"; first 2 paragraphs are GUDOK introduction]

[Text] "When criticism and self-criticism let up, the party's work is distorted, and an atmosphere of complacency and impunity is created which leads to stagnation and worker degeneracy. There should be no organizations in the party which are immune from criticism. Not a single leader should escape responsibility for his actions..."

It would not be out of place to remind those leaders, whom our newspaper subjected to just criticism, of these words from the 27th Congress's Resolution on the Political Report of the CPSU Central Committee. The way they are reacting to criticism shows that not all of them are aware of its purifying mission.

Construction of railroad tracks and facilities for locomotive, car, station and other departments, as well as electrification of the most important sections of the Alma-Ata railroad were performed at a rapid pace. The Ministry of Railways [MPS] was supplying the railroad with powerful diesel locomotives and other equipment. Hundreds of millions of rubles were invested in the development and technical modernization of the railroad. Just during the 11th 5-Year Plan period the investment increased by R400 million when compared to the 10th 5-Year Plan period. But not only did the railroad's performance fail to improve. It was deteriorating constantly: freight movement had been slowing down, shipments were getting more expensive, traction equipment was being disabled.

There were a lot of reasons. The main reason: worthless management methods. Instead of mobilizing the employees for shock work and revealing and utilizing reserves, the railroad managers fell into complacency and slacked off on monitoring the subdivisions' activities. There were flagrant violations in personnel selection and placement. Managerial positions were filled with unscrupulous people who selfishly abused their power.

After an article in our newspaper the MPS collegium reviewed the situation at the railroad. After the chief of the railroad K. Kobzhasarov and his first deputy A. Golubchenko presented their explanations, the collegium noted that, in spite of the enormous help given the railroad in strengthening its material

and technical resources, especially in replenishment and renovation of the locomotive fleet and station expansion, the Alma-Ata Railroad's performance had been unsatisfactory for a long time.

During the last 5-year plan period the railroad was given a significant portion of all deliveries of diesel locomotives. However, due to unsatisfactory operation and maintenance, the depot percentage of defective locomotives was almost two times higher than the norm. The number of locomotive returns for unscheduled repairs was 1.6 times higher than the average, while the number of damages increased 1.4 times. Due to criminal negligence, 77 diesel locomotives were taken out of the railroad fleet in the last three years.

The number of violations of performance schedules by locomotive crews has increased by 11.7 percent.

Maintenance of the car fleet is also inadequate. The number of car damages in freight traffic and switching has increased 1.4 times.

The status of train traffic safety was extremely unsatisfactory. Compared to 1984, the number of wrecks and accidents has increased 2.5 times, whereas the number of defects in traffic and switching has increased 1.3 times.

Organization of passenger service in trains and at railroad stations is also inadequate. Often, vacant seats are not declared and non-ticketed passengers are transported. The Ministry receives a lot of complaints in regards to low service standards in banner trains No.7 Alma-Ata--Moscow and No.17 Frunze--Moscow.

Resources allocated for railroad development are not being fully utilized. A lot of economical indicators have deteriorated. There are numerous cases of mismanagement. Embezzlement, spoilage, damage and other losses are still high. The level of labor and production discipline has dropped. Absenteeism is on the increase.

The railroad's deterioration is due to the inadequate methods and style of some managers, in particular chief K. Kobzhasarov. The required collective management is lacking. Wrong, and sometimes voluntary decisions are frequently made. Administration by mere injunction is deeply rooted, dependency attitudes are popularized and encouraged; managers of line facilities are being substituted and their authority limited, which leads to passiveness and irresponsibility. Protectionism and personnel selection based on personal staunchness occur with increasing frequency.

The collegium's resolution stated that the Alma-Ata Railroad chief K. Kobzhasarov and his first deputy A. Golubchenko deserve dismissal. However, taking into account their assurances to improve the status of the railroad in the shortest time possible, the decision was made to put them on notice of their professional inadequacy. They were ordered to take measures to drastically change their management style and methods in accordance with the requirements of the April (1985) Plenum of the CPSU Central Committee,

eliminate serious defects, radically improve the railroad performance and make sure that the targets are unconditionally met.

\* \* \*

The editorial board has received a response from the MPS Educational Institutions MA. According to a deputy chief of the main administration G. Poddubnyy, by order of the people's education council, principal of Dzhambul secondary school No.26 N. Sporysheva has been dismissed for violating "Rules for Production, Custody and Issuance of and Accounting for Education Certificates".

The raid materials presented an account of unscrupulous actions and abuse of power by the Dzhambul Division chief A. Kaymoldayev. By MPS order, he was dismissed. However, certain patrons stood up for the manager at fault. The MPS order had just been issued when A. Kaymoldayev was transferred to the capital of the republic and appointed a deputy manager of the passenger service department.

According to our Alma-Ata railroad reporter, after an article in GUDOK A. Kaymoldayev was relieved from the position of the deputy chief of passenger service department. But this was done secretly and not made public.

The editorial board waited for a long time for reports on the Alma-Ata railroad and the Dzhambul Division's reaction to the newspaper's criticism. However, the railroad and division management kept silent. In the meantime, the editorial board is receiving readers' letters asking: "What has been done specifically to restore the order?". Such an attitude on the railroad's part towards criticism is not an isolated event.

In early November of last year GUDOK published a letter by an Alma-Ata Division traffic controller D. Davletov regarding shortcomings in heavyweight train traffic. The silence lasted for about three months. Finally, an optimistic response came in, stating that for heavyweight routes tracks had been lengthened and methods for their passage developed.

However, an inspection has revealed that only 2 heavyweight trains had passed over the entire section up to Aktogay and a few more had been let through shorter sections. The average weight of a train had not significantly increased either. It turns out that once again there has been no reaction to the criticism. Isn't it the time to repudiate the working style that received nation-wide condemnation at the 27th CPSU Congress?

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CSO: 1829/149

## RAIL SYSTEMS

### OCTOBER RAILROAD TESTS FIBER OPTIC COMMO LINE

Moscow GUDOK in Russian 14 Mar 86 p 1

[Article by V. Gitkovich, "Gudok" special reporter, under the rubric "Twelfth 5-Year Plan: Accelerating Scientific and Technical Progress": "The Talking Light"]

[Text] "Moscow is on the line", the operator reported.

"Hello, editorial board? This is your special reporter speaking. I am now at Mga station of the Oktyabrskaya Railroad. We are talking through the nation's first light conducting long distance communication line. Can you hear me?"

"I can hear you fine. How is the innovation? Impressive?"

"Absolutely! I'll tell you more when I come back."

The light conduit occupied a rather modest place in this conversation: it provided communication over 41 km out of the 700 that separated the parties. But what I knew at the moment about light conducting transmission systems (SSP) [svetovodnaya sistema peredachi] really impressed me.

To begin with, I was given a seemingly regular piece of 3 mm diameter wire in black plastic insulation. It was soft to touch and easily flexible. It had a hollow metal rod on one end and approximately 1 mm thick nylon "fishing line" on the other.

"Is this the light conduit?", I asked, pointing to the transparent string.

"No, it is just a sheath. The conduit itself is much thinner. Take a closer look or touch the 'fishing line' point with your finger."

I touched it and felt a very thin sting piercing the skin.

"Feel it? This is the light conduit -- a pure quartz fiber."

"Does it provide a communication channel?"

"One hundred and twenty channels", I was corrected.

Frankly speaking, it was hard to believe that such a thin hair was capable of transmitting so much information.

"Even a TV channel can be transmitted", the communication people told me. "As to the light conduit itself, one person brings to a factory in his briefcase the conduit necessary for producing 50 km of cable. And some time later you get a call from the factory: 'We have shipped you a railcarload of cable, please unload!'"

That is why I was eager to see and try out the miracle.

section of the Moscow-Leningrad passenger signalling and communication division. The sector chief Aleksandr Dmitriyevich Baranenko, himself one of the most active participants in implementing the innovation, introduces us to the facilities.

"These are modern communication devices", he points to a rack where massive metal cases are mounted, one above another, up to the ceiling. "This is a 12-channel semiconductor stack. It is 2,600 mm long, 650 mm wide and 400 mm deep. The power consumption is 400 watts. Now let us go to the adjacent room.

Here you can see a stack of light conducting line devices. It is the same height, but, as you can see, only one-third of the height is used; it is 120 mm wide and 220 mm deep; the power consumption is 50 watts. And mind you, it provides 240 channels. A twenty-fold increase!"

It was then that I asked to be put through to Moscow. After the conversation ended, I said I was sorry I could not compare the audibility of a regular and the light conducting lines.

"Yes, you can," countered deputy manager of communications department V. Korennikov. "Connect a loudspeaker with the controller's line, please".

The room became filled with usual long distance communication noises amplified by the equipment. One could even hear an induced outside conversation.

"And now the light conduit, please."

An absolute silence ensued.

"Doesn't work?", I inquired sympathetically.

Everybody was smiling.

"Yours is a normal response of a normal person who often talks on the phone", summed up one of the system's developers. "The whole point is that it does work. Moscow operator, would you count, please."

"One, two, three, four", counted a calm and clear female voice; all shades could be clearly heard, as if the speaker was next to me.

"That's it. Any questions? You can ask them later, and now let us drive to an intermediate station."

It is well known, that in any communication line a signal gradually loses its power and that, in order to maintain it, regeneration stations should be installed at certain intervals. For regular lines the spacing is 3 to 4 km; for a light conducting line it is 30 km or more, and this is one of the line's advantages.

In the line equipment room of the Pella station we saw the same size narrow stack with only one-third of its height filled with equipment. It terminated with two small wires: 120 reception and 120 transmission channels. Here in Pella the incoming signal power was restored, and the signal was transmitted further, towards Leningrad.

All the light conducting communication equipment uses integrated circuits, so in-field repairs are very hard to perform, but there is no need for them. In the case of a failure a signal on a service panel will come on, showing the row and PCB number. The faulty PCB will be replaced by a good one.

There are also other lights on the line station rack; they present information on the performance of the power unit, the presence of the input signal and the error ratio. I would like to elaborate on the latter. The thing is that a signal is transmitted via a light conduit by means of a digital code. The system's performance is considered normal if there is no more than one error per million of characters transmitted.

When I visited Pella, the system's accuracy was (the figure is hard to envision, but I will still quote it) one error per 100 billion (!) characters, i.e. for all practical purposes the system's performance was faultless.

A year ago a report was published stating that the Politburo of the CPSU Central Committee had examined and approved the Council of Ministers' proposal to accelerate the development of telephone communications in the 12th 5-Year Plan period, to increase the production of necessary equipment, devices and materials and to build local and main light conducting lines...

And now, on the eve of the 27th Party Congress, railroad communications workers together with specialists from Minpromsvyaz, Mintransstroy, Minelektrotekhprom and Minpromstroymaterialov have developed and put into trial operation the first stage of the light conducting line between Leningrad and Mga. By the end of the year the construction of the entire 120 km long line to the Volkhovstroy station will have been completed.

"And what are your major concerns now?", I asked Vladimir Vasilyevich Korennikov.

"As far as the completed section is concerned, turn on all communication channels as soon as possible, so that we can check the working capacity of the line at the maximum load. Secondly, provide communication channels between the railroad's central computer and stations with considerable freight traffic. And, of course, keep moving towards the Volkhovstroy station without procrastination. Now it will be both easier, because we have gained some

experience, and harder, because the section is twice as long and the time is running out".

"Do you agree that the future is with light conducting lines?"

"Certainly! Overall, and in railway transportation in particular. It is as if they have been specifically invented for us: they are insensitive to outside electromagnetic interference created by powerful electric locomotives. Besides, using a light conduit it is easy to identify channels at line stations.

On the other hand, this alliance is also good for the light conducting transmission systems. Firstly, it is easy to lay them in the railroad right-of-ways, where there are almost no obstructions. Secondly, the length of regeneration sections is less than the distance between railroad stations, which means there is no need to construct special buildings. Thirdly, all network stations have the electrical power supplies required for regenerators.

As to the economical side of the matter, it is very promising too. In developing the line we only used domestic materials, equipment and know-how which are not inferior to foreign technology. The cable does not use scarce copper and lead, and its small dimensions and low weight simplify the laying".

"May I ask you one last question: who were the best workers?"

"This is the most difficult one. Not that I don't know the answer. But very many people spared neither the time nor the effort for the success of the enterprise. That is why we extend a big thank you to all those who made it possible for the new technology, a light conducting transmission system, to start working for the 5-year plan".

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CSO: 1829/149

## RAIL SYSTEMS

### CHITA OBKOM SECRETARY ON BAM DEVELOPMENT PROBLEMS

Moscow GUDOK in Russian 30 Mar 86 p 2

[Article by V. Bayev, Chita Obkom Secretary, under the rubric "This Was Talked About at the Congress": "BAM: the Problems of the Chita Section"; first three paragraphs are GUDOK introduction]

[Text] The Baikal-Amur Railroad (BAM) plays an important role in integrated development of natural resources of the eastern regions of the country and in accelerated development of our entire economic structure. This was vigorously emphasized at the 27th CPSU Congress. It was also noted in delegates' speeches that construction of the railroad's infrastructure and economical exploitation of the BAM area are conducted at an intolerably slow pace, even though it has been more than a year since the operational traffic along the railroad was opened.

The BAM problem is extremely urgent. Today it should be admitted that a larger economic effect of the ahead-of-schedule rail joining at BAM was anticipated. It has not materialized so far.

Why? This, as well as ways for overcoming the difficulties, is the subject of the article by Chita Obkom Secretary V. Bayev.

At a meeting that took place in Tynda immediately after the rail joining it was emphasized that opening through traffic was only half the job; that by no means should the achieved work pace slow down; that contractors' crews should be immediately redirected towards industrial and civil construction projects; that they should get involved in building the infrastructure for all divisions of the railroad, construction of permanent housing, social and cultural complexes and in creating normal living and working conditions.

The railroad operators still had over 40 percent of the capital investment left to assimilate. As to the Chita section, which was the last one to receive rails and where there was nothing except the rails and temporary settlements, this index exceeded 50 percent.

In the northern part of Chita Oblast there is a unique Udokan copper ore deposit. Today the scientific, technical, and industrial preparation for economic exploitation of the deposit is entirely dependent on the railroad, on the degree of its preparedness for heavy load traffic. And then the construction and exploitation of a new territorial-industrial complex will undoubtedly follow.



Those who live east of Baykal are especially interested in bringing the railroad up to par and in increasing the pace of industrial and civil construction at their Chita section.

However, neither the Ministry of Railways [MPS], the customer, nor Glavbamstroy, the general contractor, have so far been able to reorganize their activities and redirect their employees towards new goals. The 1985 construction and installation plan of the "Bamstroyput" administration that builds our section was even reduced in comparison to 1984. And in order to meet the target, the general contractor was doing anything but increasing construction of buildings and installations. Moreover, this year's plan does not provide for the increase in these indices either. The further development of the Chita section has been postponed till the last years of the 5-year plan. This worries the Chita Obkom.

In the years immediately to come five railroad stations and permanent settlements must be built in the northern part of the region, including the entire complex of railroad technical installations, such as locomotive depots, PTO, passenger terminals, communication centers and engineering structures. A lot of housing must be built, as well as social, cultural and service installations (construction workers here still live in temporary settlements, in buildings that are poorly suited for the severe conditions). A serious program has been contemplated, which is impossible to realize in the short time. Hence, to get the Chita section ready for permanent operation by the end of the 5-year plan, it will be necessary to do rush work. And in this case both moral and economic losses are inevitable, as well as lower quality of construction. The thing is that the Chita section once again becomes the last one in putting the railroad into permanent operation.

The customer and general contractor build their strategy as follows: first concentrate the effort on priority sections, and then "attack" the Chita section. Such a concept might seem logical in a way, but, according to our calculations, it will inevitably lead to a time shortage. There simply will be no time to complete what has been started. When the turn comes for the northern Transbaykal, the volume of construction to be done will have grown to such an extent that it will be impossible to accomplish it all. In this case the section's starting complex will have to be cut to a minimum and, of course, not at the expense of industrial structures. That means that BAM operators will get much less housing, as well as social, cultural, and service facilities. The disproportion between the production capacity of the section and the development of its social infrastructure could remain for many years to come.

There is only one way out: immediately speed up the work in the northern part of the region. Construction workers of the "Bamstroyput" administration and patron organizations from Uzbekistan, Kazakhstan, and Georgia have a fairly strong production potential, and they can even increase it. The main thing now is not to scatter the efforts, not to divert them to other sections, but to find a way of rationally utilizing them right here. There is no doubt that

they can accomplish much more than has been planned, if this potential is put to the best use.

But so far this is exactly where they have been failing. I think that it is not internal problems of contractors that are mainly to blame, but rather inadequate financing, inadequate supplies of equipment and materials and late releases of technical and financial documentation. In short, everything within the scope of authority of the main administration, BAM construction management, and the ministries involved.

For instance, the starting complex of the section has not been approved yet. The customer and general designers "Lengiprotrans" and "Sibgiprotrans" release technical documentation not in a technological sequence; the documentation is not complete and contains errors. This is especially true of the engineering support documentation. The result is that certain buildings are scheduled to be commissioned this year. But boiler houses, purification facilities, as well as water, sewer, and power lines for these buildings are not ready yet.

Construction workers are experiencing many hangups owing to designing which comes late and to violations of the examination and approval procedure. Project documentation is often released with major design flaws, violations of the heat-and-power supply regime of buildings and inadequate architectural and layout solutions. What should one do in such cases? Should one permit the construction of poor quality projects in order not to lose valuable time or should one postpone them for a long time? This is when debates begin, as well as the search for compromises.

Unfortunately, it must be said that in recent years the interest in BAM has declined. The degree of responsibility for adequately supplying it is not as great as it used to be, and the supply system itself has changed. For instance, last year the Chita section was supplied with only half of the needed metal and prefabricated reinforced concrete. And today the builders of the section are on a "hungry ration" too. Patrons of the Ikabya station are in an especially difficult situation. "Gruzbamstroy" could have turned over housing to tenants, but the Shimanovskiy integrated construction factory has not delivered house structures on schedule, and what has been delivered has major defects that cannot be corrected at a construction site.

Kazakhstan patrons in Chara are not doing any better, but things are especially bad at Kuanda where construction work is being done by the representatives of Uzbekistan. It has only been recently decided what kind of structures to use in building the station's housing. The Shimanovskiy integrated factory has discontinued production of the old series of houses, but has not mastered the new series yet. Brick houses are not permitted due to seismicity; the Tashkent type houses are inadequate because of their heat conductivity. The solution was found: build timber houses. But there is no documentation for those.

Laying foundations is extremely difficult in our conditions. We still do not have an optimum technology for driving piles, and many thousands of them at that, into permafrost. We have serious complaints against the permafrost

science, especially the applied one. The scientific research in this area is ineffective, the existing methods are expensive and labor intensive. Builders can only drive a few piles per shift. One cannot help but remember the experience of BAM bridge builders who, instead of palisades of piles, used new structures, developed their own methods and tremendously reduced the construction time for bridges. Evidently, a similar solution could be found in civil construction, the more so since there is a precedent. But in the meantime the cost of the underground structures for some objects is over 40 percent of the total construction cost.

The CPSU obkom is aiming at accelerating the pace of industrial construction and building permanent settlements. We are working together with BAM designers, the customer, and the patrons. What is necessary is for the MPS and Mintransstroy to change their attitude to the problem and to the needs of our section, even though it is not a priority section yet. We think it is not too late to change the organization and strive not only to hold to the construction schedule but even to set a pace that is ahead of schedule.

Timely, or, even better, ahead-of-schedule commissioning of the railroad for permanent operation will make it possible to strengthen the economic rearguard of the region and speed up the exploitation of the Udokan copper deposit, as well as the future exploitation of other mineral deposits. In the Chita section area there are deposits of coking and brown coal, iron ore, and aluminum. These treasures should be put to use for the national economy as soon as possible. This requires joint efforts on the part of many ministries and agencies.

There is another problem that is of extreme concern to us: the area of the Kalar district through which BAM passes is 56,000 square kilometers, which is equal to the area of Novgorod Oblast. Naturally, to develop the region, the railroad alone is not enough. There is a need for an automobile road that runs along the railroad with side roads to the existing settlements, and later on to future settlements, as well as to industrial enterprises east of Baykal. There already is such a road. It was built at the same time as the main BAM line. The builders do not need it that badly right now, but it is being used by many other parties. The trouble is that the road has no owner. There is nobody to keep an eye on it, nobody to maintain and develop it. It has to be assigned to a specialized maintenance organization within the RSFSR Minavtodor, which we are now trying to do. Approximately one-fifth of the existing road has already been assigned to the Chita Production Administration for Road Construction and Maintenance, RSFSR Minavtodor. But the Ministry has barred the transfer of the remaining section. This section has to be brought up to the appropriate category level. Well, the builders are ready to do it, but where is the money coming from? The MPS and Minavtodor are in no rush to invest their money in the reconstruction of automobile roads along the railroad. Four-fifths of the filled automobile road are gradually deteriorating due to rains, mindless maintenance and the caprices of the permafrost. Bureaucratic dissociation is detrimental to the State interests.

The construction of BAM is going on. Today it calls for special attention. The railroad itself is but the first step in developing the North. Our common concern is to bring this day closer.

MARITIME AND RIVER FLEETS

CHIEF ON RIVER TRANSPORT IN UKRAINE

Moscow RECHNOY TRANSPORT in Russian No 10, Oct 85 pp 8 - 11

[Article by the chief of the Main Administration of the River Fleet in the UkSSR Council of Ministers, N. Slavov: "On a Course for Efficiency"]

[Excerpts] The river transport of the Ukraine has been transformed into a modern industrial sector of the national economy which is playing an important role in the successful development of the economy of the republic.

Glavrechflot UkSSR [The Main Administration of the River Fleet of the Ukrainian SSR] was created in 1959. Since that time the volume of cargoes transported has grown by a factor of 3.5, the number of passengers, by a factor of 1.5, the quantity of cargoes handled, by a factor of 3.7, and the gross production of the industrial enterprises, by a factor of 2.2 - all this with an increase in the total number of workers of 20 percent in all. The productivity of labor in haulage, transshipment operations, and in industrial activities have increased by factors of 2.5, 2.46, and 2.45 respectively.

These results were possible thanks to the carrying out of a broad complex of large-scale organizational and technical measures for increasing the efficiency of river transport operations. Such measures were:

- a qualitative renewal of the transport fleet and improvement of the methods of organizing its operations,
- the development of deep waterways, river ports, and industrial enterprises,
- prolonging the period of navigation,
- the introduction of efficient forms for organizing the work of afloat personnel,
- improvement of the system of management,
- reconstruction of existing enterprises and strengthening the material and technical base for river transport, and

- training qualified personnel.

At the present time in the republic, more than 50 percent of the cargo fleet consists of powerful ships of large deadweight which are being used in the transportation of such important national economic cargoes as bituminous coal, iron and bauxite ores, mineral construction materials and others.

Almost the whole volume of bauxite ores and bituminous coal for enterprises along the Dnieper river is being delivered by river transport. The transportation of grain, refractories, petroleum products, and quartzites is being carried out. The volume of cargoes transported on small rivers is being increased annually. The transport of foreign trade cargoes is being developed at a high rate.

The assimilation of high-powered and large deadweight ships has contributed to curtailing expenditures for the labor of personnel afloat and also has created conditions for increasing the level of comprehensive mechanization of cargo operations for the river ports as a whole, to 99.5 percent.

In the current five-year plan, Glavrechflot UkSSR has begun to be reinforced with new cargo motorships having capacities of 3,650 and 5,000 tons which are being used in the transport of cargoes between ports on the Dnieper and Danube rivers. These ships, in technical and economic indicators, surpass the existing cargo fleet.

The use of a fundamentally new method of hauling cargoes in trains consisting of a cargo motorship and a pushed barge have yielded substantial efficiency. In such trains, having a capacity of 4,000 tons, 25 percent of the freight turnover along the Dnieper is being accomplished. As calculations show, the use in the near future of trains with a total capacity of 6,000 tons will increase the productivity of the labor of personnel afloat by 50 percent.

In the river transport of the republic, for the first time in the country, the method of operating the nonself-propelled fleet without barge crews has been mastered. First, a system of measures was developed and introduced which determines the procedure and conditions for use of the nonself-propelled fleet. The efficiency of this method is obvious. Now, about 350 roadstead barge captains operate a nonself-propelled fleet in which, by the old method, 1,000 men would have been occupied.

The operation of ships of mixed, river-and-sea, navigation has been mastered, including their use in foreign communications. The proportion of the freight turnover carried by these ships has reached 25 percent. Organizing haulage in these ships not only lowers transportation costs substantially by eliminating transshipment of cargoes at river-mouth ports and increasing the utilization of the fleet in time by overcoming the seasonal operation of it, but it also contributes to an expansion of foreign trade communications and to an increase in gross receipts. Right now, haulage is being carried out to 30 ports in 8 countries of Europe.

The seasonal operation of river transport has a negative effect on its development. Prolonging navigation, therefore, is being given constant attention. In 1977-1978, for the first time, a shipping line was organized for hauling cargoes on the 90 kilometer sector from Zaporozhye to Energodar with the use of 1,800 ton capacity cargo motorships. A large complex of organizational and technical measures were carried out in 1978 and 1979 to provide for hauling iron ore raw materials from the Dneprovskiy mining and enrichment combine in wintertime. Developing the necessary conditions for operating in winter, we already are carrying out 10 percent of the annual volume of haulage in winter.

From year to year, the transport of cargoes in interfacing railroad and water transportation is being increased which requires close cooperation in the work of all participants in the transport conveyor. Fulfilling the decree of the CPSU Central Committee on the experience of the Odessa transport workers and about the labor collaboration of seamen, railroad men, motor vehicle operators and river men in the Leningrad transportation center, the river men of the Ukraine have done much work on improving operations with interfacing transport workers and have developed a comprehensive socialist competition. So, in the Kiev transportation center, a unified technological process has been developed and introduced for operating the Kiev-Petrovka station, the motor vehicle enterprises, and the port of Kiev. In the Kherson transportation center a continuous planning schedule for the operation of the center has been introduced which includes the river port, the Kherson department of the Odessa railroad, and the Kherson region motor vehicle transport administration.

The labor collaboration of the river men, railroad men, and motor vehicle operators contributes to the increased efficiency of the operations of all kinds of transportation and to uncovering unused potentials for production. In 1984 alone, fleet idleness was reduced by 18.4 percent, and rail car demurrage by 13.9 percent. In the winter period the ports are transformed into branches of the railroads for the processing of rail cars in the transportation center.

A complex of measures has been carried out for the transformation of the sector into a progressive two-component management structure.

At the present time, the Main Administration of the River Fleet in the UkSSR Council of Ministers is the republic's managing body and, at the same time, it fulfills all the functions of a producing, self-supporting, transportation enterprise (shipping company), carrying out direct supervision of the movement of the transport fleet, of the work of ports and the regional administrations, of the shipbuilding plants and fleet repair and operating bases, of the organizations for waterways, construction, and planning and design work, and the commercial organizations.

The establishment of the two-component management structure in the organization of Glavrechflot was accompanied by the liquidation of intermediate components in the supervision of the work, the enlargement, and the consolidation of existing enterprises and their internal structural subdivisions.

Improvement of the management of the river transport is closely connected with the development of an automated system of control for the industrial sector. The systems for the problems of the first stage of OASU [Sector Automated System of Control] "Rechflot UkSSR" and the first stage of the ASU [Automated System of Control] "Port" have been turned over for industrial operation. In a current mode, they solve the systems of problems: "Accounting for the presence of cargoes and the processing of rail cars in ports", and "The distribution of ships for river and sea navigation and accounting for their financial indicators". In a number of ports, details on transshipment operations are being worked up, planning and technical documentation for the repair of the fleet is being figured out, and other planning, accounting and statistical problems are being solved with the aid of computers. The introduction of the OASU "Rechflot UkSSR" at full capability will improve planning and accounting, raise the level of information of managing bodies and consequently, the effective supervision of production.

The work carried out in the sector on the technical reequipping of the cargo and passenger fleets, on the improvement of the transportation process, on the introduction of progressive forms for the organization of labor, and the improvement of management have been combined with a strengthening of the material and technical base of the enterprises of the sector. In so doing, much attention was given to the technical reequipping and reconstruction of enterprises, which yielded a substantially larger gain than the construction of new enterprises.

Cargo berths were reconstructed in the ports of Chernigov, Dnepropetrovsk, Kherson, Cherkassy, and Kremenchug. Modern passenger piers were brought under construction in Kiev and Cherkassy, and river stations in Chernigov and Kremenchug. Stations are under construction in Dnepropetrovsk and Belgorod-Dnestrovsk. Construction was completed of the complex of training and production shops for the Kiev SSRZ [Shipbuilding and Ship Repair Plant] having a base for training afloat personnel, a dining hall, stores, and other domestic facilities.

At the Kherson SSRZ a hull welding shop was put into operation. At the Kiev SSRZ a fitting-out quay provided with modern means of mechanization was built, construction was completed of a general purpose ship-lifting and launching facility, and an efficient hull welding trestle was put in service. The Zaporozhye SSRZ is being reconstructed. A comprehensively mechanized production line has been built here for the manufacture of flat and three-dimensional sections of ships. Much work has been done on the building up of capacity at the Chernobyl repair and operating base.

In river ports means for the mechanization of the cleaning of ships and rail cars are being widely used. These are small-sized bulldozers, and vibrating installations which are used to eliminate heavy hand labor. The use of special cargo gripping devices for the transshipment of piecewise cargoes substantially reduces labor consumption in these operations.

The measures taken in the ports of the basin have raised the level of comprehensive mechanization for transshipment work to 99.5 percent, have brought the throughput capacity of the ports up to 0.5 million tons per day, and have lowered the norms for processing ships.

Further elevation of the efficiency of operation of the river transport of the republic, to a significant degree, will depend on the solution of a number of basic problems.

First of all, it is necessary to reinforce the transport fleet with ships of various types. In particular, procurement is required of ships for mixed, river-and-sea, navigation to increase the volume of transport of export and import cargoes, and ships of the icebreaking type to provide for year-round navigation. The question of the reinforcement of the fleet with specialized ships for the transport of grain, vegetables, and fruits should be decided as that would be a substantial contribution of the rivermen to the solution of the Food Program.

Increasing transport within the basins, especially of industrial cargoes, is being held back by unsatisfactory development of the berths of UkSSR Mindorstroy and Minpromstroy [Ministries of Highway Construction and Maintenance and of Industrial Construction] and also by the unwillingness of UkSSR Minchermet [Ministry of Ferrous metallurgy] to construct berths for the receipt of pellets at Dnepropetrovsk, Dneprodzerzhinsk, and Zaporozhye.

The necessity to supply river ports with high-productivity mechanisms for the handling of twenty-foot containers has become urgent. These questions stand out especially sharply because the ports of the Dnieper have begun to process cargoes arriving in lighters.

The successful fulfillment of the planned assignments is the result of the selfless work of all the collectives of rivermen on the basis of widespread socialist competition. At present more than 28,000 rivermen are participating in it and, of them, 18,500 persons are in the movement for the communist attitude toward labor.

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OPERATION PROBLEMS OF SOVIET TANKER FLEET CITED

Moscow MORSKOY FLOT in Russian No 2, Feb 86 pp 11-12

[Article by L. Serebryanny and K. Yegorov: "Tanker Fleet Can Operate Better"; first paragraph is introduction by the authors]

[Text] In the draft of new wording of the CPSU program it is stated: "The effectiveness of scientific and technical progress depends not only on increasing the output of new equipment but also on better utilization of fixed capital and on increasing the yield of production from every unit of equipment and every square meter of production area." In the light of these demands great tasks are to be solved by the maritime transport. However, the current condition with regard to utilization of the tanker fleet arouses concern. During the past 5 years, unproductive layovers have increased by 30 percent and have amounted to half of all layover time. Why? How did it happen that having our own considerable tonnage we have to charter foreign tankers? What prevents putting the obvious reserves of efficient work in action? Various opinions exist with respect to the problem, but one thing is clear: measures are needed which would contribute to increasing the carrying capacity of tankers for the needs of the national economy as well as for satisfying the country's export requirements. This article is devoted to examining the bottlenecks in utilization of the tanker fleet. We have made an attempt not only to describe the state of affairs but also to outline ways for solving some problem questions.

At the present time, shipping companies have 275 tankers and 11 combined ships for the hauling of liquid and bulk cargo with a total deadweight of more than 7 million tons. This fleet's share accounts for 42 percent of shipments of export and import cargo being hauled by ships of the Minmorflot, and the net receipts for its operation amount to 28-32 percent from all receipts of this kind. Consequently, the role and place of the tanker fleet in the sector's production activity are significant.

However, these indicators, as testified by analysis, are far from desirable results. The available fleet is not always used at a proper level. And, evidently, this is the basic reason why we are forced to charter foreign tonnage. But in the long term the volume of shipments will grow, and the demands on operational activity will also increase. It should also be taken into account that the tanker fleet's carrying capacity in the 12th 5-Year Plan

will be lower than in the 11th 5-Year Plan, since the expected tonnage replenishment will be smaller than the planned write off. Therefore, the task with regard to intensification of tanker operations should be regarded as an urgent one. This task precisely explains the particular attention to the shortcomings and unsolved problems, which have been encountered by the tanker fleet in the past decade.

First of all, it is a question of increasing losses of time in Soviet ports, which is explained by unsatisfactory organization of cargo handling operations as well as by long layovers under auxiliary operations. The aggravation of these problems had led to the deterioration of quality work indicators. For example, the tanker fleet's labor productivity, despite stabilization in 1984, following a 3-year period of decline, turned out to be almost 14 percent lower than during the years of the 10th 5-Year Plan. The gap between gross and net norms of cargo handling operations remains considerable to an extreme extent. Thus, in the period from 1976 to 1984 the average gross intensity of cargo handling operations amounted to only approximately 35 percent of the synonymous net intensity indicator. The basic reason of the gap between these indicators, as noted earlier, was the growth of unproductive layovers.

Layovers of tankers beyond the scope of cargo handling operations have increased considerably owing to some reasons of an organizational nature: waiting for cargo, bunker fuel, discharging of dirty ballast, and so forth. The appearance of such problems, first of all, is linked with insufficient responsibility of organizations which are participating in the shipping process. Organs of the Goskomnefteprodukt and the Minnefteprom do not bear proper responsibility for late delivery of cargo and bunker fuel to oil bases. On the other hand, workers of shipping companies and ports have not been adopting effective measures aimed at reducing the layovers of tankers.

There have been long layovers of tankers while waiting for berths or owing to slow delivery of cargo, which is connected with poor condition of coastal facilities of ports and oil transshipment bases. In Odessa, Batumi, Klaipeda, Ventspils, and Nakhodka some berths require urgent repairs or complete reconstruction.

The majority of maritime oil transshipment complexes are in an extremely unsatisfactory condition. The wear of some capacities in Odessa, Tuapse, Batumi, and Klaipeda has reached such a level that inspection authorities were forced to put them out of operation. At many oil bases there is always not enough capacities for cargo accumulation. Therefore, cases often arise when there are simultaneous demurrages of tank cars waiting to unload and tankers waiting to load. Moreover, some oil bases are equipped with low-powered pumps, have small diameter pipelines, and are experiencing a sharp shortage of stand pipes of modern design. During the past 15-20 years, work with respect to expansion of production capacities or modernization was not conducted at the majority of oil bases, though there were instructions by directive organs for individual oil bases (Odessa, Batumi). There is still more. Insufficient depths in approach channels and water areas of ports make it impossible for large tankers with full loads to pass there.

A question arises quite naturally about measures which must be adopted for intensification of tanker fleet operations. We believe that to be regarded as urgent ones are the tasks with regard to reducing the layover time of ships in ports, reducing the gap between the net and gross norms of cargo handling operations, reviewing these norms, and ensuring loading of tankers in accordance with their receiving capacity. It is extremely necessary to increase the responsibility of enterprises of the Minnefteprom and the Goskomnefteprodukt for late delivery of oil cargo and bunker fuel to oil transshipment bases. The situation demands that modernization of oil bases in all maritime basins be conducted within a short space of time and that provisions be made for increasing capacities, replacing cargo pumps with more powerful ones, introducing more economical means of automating the loading and unloading process, and installing computers. It is also advisable to develop a system of measures for improving morale and economic incentives of workers who are responsible for prompt processing of tankers in ports.

Shipping companies, enterprises, and organizations of the Minmorflot must think for a while about how to promptly conduct major repairs or modernization of oil berths, which are in an unsatisfactory condition. Additional berths should be built in Odessa and Batumi, dredging work should be conducted in water areas of ports, and approach channels should be expanded. It is necessary to replenish port facilities with powerful tugboats, oil skimmers, floating fuelers, and other auxiliary craft. It is also important to implement some measures aimed at organizing a system of material and technical supply of tankers, improving bunkering, and reducing layovers owing to organizational reasons.

Apart from the measures, which are directed at reducing the layover time of tankers in ports, it is advisable in an accelerated manner to improve all operational work: to increase the period between repairs of tankers; to conduct routine maintenance and minor repairs while in operation; to use on a broader scale in this connection the levers of economic stimulation of labor of crews; to introduce the system of continuous planning of tanker fleet operations everywhere; to implement distribution of tanker on routes and directions on the basis of economic expediency; to practice assigning of ships for operations under successive voyage conditions where stable cargo flows exist; and to use on a broader scale in the tanker fleet a coordination system which is characteristic of the activity of transshipping centers.

The questions with regard to construction of new oil complexes in the Azov-Black Sea and Baltic basins should be examined already today. Thus, for example, it is advisable to study carefully the proposal with regard to construction of an oil transshipment complex in the Yuzhnyy Port, inasmuch as expansion of the existing oil region of the Odessa Port is highly problematic owing to extreme "hemming in" of the port by the city and other considerations of ecological and architectural-planning nature.

The establishment of new oil bases in both basins is also connected with the fact that the planned major repairs or modernization of existing oil berths in Odessa, Batumi, Ventspils, and Klaipeda will considerably reduce the capacity of oil-loading areas with regard to shipment of goods for export.

Measures for increasing the capacities of treating facilities in all ports are of exceptional significance in our days. This is prompted by ecological demands as well as by economic expediency. After all, the layovers of tankers while waiting to discharge dirty ballast is not an infrequent occurrence. And this is losses.

There is no doubt that implementation of the entire complex of measures aimed at intensification of the tanker fleet's operations is a task which is difficult to solve within the framework of one 5-year plan. However, it is necessary to do this persistently and with a firmness of purpose. At least work of a reconstructive nature needs to be carried out in the period immediately ahead.

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MARITIME AND RIVER FLEETS

IMPROVED 'SOKOL-MR' COMMO SYSTEM URGED; 'DISK' SYSTEM PLANS

Moscow MORSKOY FLOT in Russian No 2, Feb 86 p 37.

[Letter to the editorial office by V. Sheyenko, radio station chief of the motorship Azerbaydzhan of the Black Sea Shipping Company: "The Irreplaceable 'Sokol'"; passage within slantlines published in italics]

[Text] It is known that radio communication plays an exceptionally great role. Ensurance of navigation safety, efficient, dispatcher supervision of the fleet, and transmission of service and private correspondence--this is far from a complete list of the tasks which are being fulfilled by ship radio specialists.

The basic radio communication on the majority of ships is the one using the Morse code with mandatory participation of man. This method demands great nervous exertion and constant attention from a radio operator connected with the necessity of "getting out" from the enormous world of sounds "our own" voices and then rapidly converting them into a popular readable text. A radio channel using the Morse code is exposed to the influence of interference, therefore cases are not uncommon when a ship loses stable communication for a period of time. The speed and quality of processing information in this mode no longer meets today's requirements.

Since the beginning of the seventies, a new technological radio communication system--letter printing--began to be introduced in the fleet. However, it also failed to solve the questions of quality and protection against interference, although the traffic speeds have increased.

In 1981, radio specialists of our ship assembled and hooked up the domestic data transmission equipment (APD) "Sokol-MR" to operating letter-printing radio equipment. The difficulties that we have encountered during assembly and putting the equipment into operation as well as during the initial period of work with the new equipment were then more than compensated by that great feeling of satisfaction which one gets during radio communication sessions.

Greater protection against interference, speed, and high quality in processing the punched tape have considerably reduced the reception-transmission time per unit of information. As a result, the expenditure of power resources needed to feed the radio equipment was reduced and its service life was extended.

Moreover, the APD "Sokol-MR" has made it possible to automate two-way radio communication completely. Triggering of the ship's transmitter, establishing communication, transmitting information, receiving confirmation of reception, and shutting down the transmitter--all of this is done from the shore. As a result, the ship's radio operator gets an opportunity to devote more attention to his basic work--ensuring navigation safety and protection of human life at sea.

Being constantly served by the MMF's Central Communications Center, we have now practically fully perfected the new radio traffic method and have convinced ourselves of its advantages and future.

The APD "Sokol-MR" makes it possible to ensure letter-printing radio communication with telex network users, and at the present time we are trying to transmit our correspondence only in this manner. I would like to draw particular attention to considerable reduction of expenditures with regard to payments for correspondence, which is transmitted by the telex network via foreign coastal radio stations to various firms. Thus, if in a telegraphic mode a fee is charged for every word, then in the telex network a fee is charged for the time directly spent on processing correspondence. And since considerably more information is transmitted in a unit of time in the telex network, then the difference in payment is impressive. The new equipment's self-paying nature is obvious: only in 5 months we have saved more than R3,000 in this manner.

The almost 5-year period of using the APD "Sokol-MR" makes it possible to draw a conclusion with regard to an urgent necessity of introducing it on a broad scale in the fleet. In conclusion I would like to express a desire that designers and the manufacturing plant devote more attention to the quality of equipment, and engineers-designers give it a modern outer appearance.

/At the request of the editorial office, V. Shchepotin, deputy chairman of the V/O Morsvyazsputnik, comments on V. Sheyenko's letter./

The article is devoted to the most important question for the Minmorflot--the introduction on ship and coastal radio stations of the new "Sokol-MR" letter-printing equipment of increased reliability.

The equipment, which has no likeness in world practice, was developed in the USSR in the latter seventies in close cooperation with the V/O Morsvyazsputnik, TSNII of the Maritime Fleet, and the Ministry of the Communications Equipment Industry. The series production, which began in 1980, has already made it possible to equip more than 300 MMF ships with it.

The author has correctly reflected the advantages, which are possessed by the "Sokol-MR," particularly in questions dealing with automation of processing information and communication with telex networks. Unfortunately, in some shipping companies both of these methods simply cannot emerge from the experimental stage.

At the present time, new "Disk" equipment, series production of which is planned for 1987, is undergoing tests. The "Sokol-MR" will continue to be produced

until that time. Both APD's are technically compatible, and so the ships equipped with a "Disk" or a "Sokol-MR" can successfully exchange information.

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## PORTS AND TRANSSHIPMENT CENTERS

### BAKU--KRASNOVODSK RAIL FERRY UNDERUTILIZED

Moscow PRAVDA in Russian 12 Dec 85 p 2

[Article by VODNYI TRANSPORT correspondent M. Verchiyan and PRAVDA correspondent L. Tairov: "With Empty Holds"]

[Text] Baku--New ships customarily are met with flowers, music, and applause. But is it so everywhere? Do they rejoice in a new ship everywhere? The questions are not idle.

Here at the quay in Baku is moored a belladonna of a diesel-electric ship just come from the building way. Yet there is no music, no flowers and on the faces of the leaders of the Caspian maritime Shipping Company there are not smiles, but sour looks.

How has the snow-white giant displeased them? Its speed is notable and its cargo capacity enviable.

It is known that a straight line connecting two points is shorter than any curve drawn between those same points. Proceeding on the basis of this axiom, transport workers drew a line, straight as an arrow across the Caspian. And two cities were the points for it - Krasnovodsk and Baku. One on the east shore of the sea and the other on the west.

That took place a quarter of a century ago. What an advantage! The route was sharply shortened and cargoes went on without transshipment in the ports. With the development of the rail ferries, the number of rail cars delivered on the ferry crossing also grew.

It turns out that there is a growing danger of the utilization of the super powerful ships with insufficient loads. Judge for yourselves. In the first half of the current year 43 voyages from Krasnovodsk were completed without a single rail car and 27 voyages with half a load.

What is the matter? The ports of Krasnovodsk and Baku are two supports for a "floating bridge". And the support on the western shore evidently is troubled, and does not wish to take the maximum loading on itself. It turns out that three years ago, at a conference of the Ministry of Railways, the



Ministry of the Maritime Fleet and Soyuzglavugl [Main Administration for Supplying and Marketing Coal of USSR Gosstab], a decision was adopted to send railroad trains with Karaganda coal for the Rustavi metallurgical combine by the shortest route - over the Caspian.

One and a half years later, however, the Ministry of Railways renounced the high agreement and again began to carry coal according to the former scheme; that is, going a considerably circuitous route further, the trains rumbled along the North Caucasus railroad and then along the Azerbaijan and Trans-Caucasus railroads. A telegram from the ministries served as an explanation:

"In connection with the difficulty in the passage of the growing railcar flow on the Central-Asian railroad, shipment of cargoes intended for the Azerbaijan and Trans-Caucasus railroads are to be carried out on through railroad transportation including cargoes planned for mixed railroad and water transport over the Krasnovodsk - Baku ferry crossing."

There are those ! They studied, they planned, and they agreed - and now everything is over the side. The Central Asian railroad turned out not to be prepared to operate in the new way. And who now is at fault that the strong, marvelous, diesel electric ships have to bashfully cover their yawning empty holds ?

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PORTS AND TRANSSHIPMENT CENTERS

RAILWAYS MINISTRY RESPONDS TO BAKU RAIL FERRY COMPLAINTS

Moscow PRAVDA in Russian 1 Feb 86 p 3

[Unsigned follow-up to a 12 December 1985 PRAVDA article entitled "With Empty Holds"]

[Text] "With Empty Holds" was the title of an article published in PRAVDA on 12 December 1985. This report revealed that the Krasnovodsk--Baku rail ferry line across the Caspian is being underutilized for the shipment of freight.

After reviewing the report, the Ministry of Railways accepted it as being correct. The response from 1st Deputy Minister of Railways V. Ginko includes the following:

"In the 4th quarter of 1985, the ministries and agencies were to supply an average of 83 railcars per day for ferry shipment. The rail workers accepted this amount and figured it into their plans.

However, this volume was insufficient to meet the required capacity for rail ferry shipments. In coordination with the Ministry of the Maritime Fleet, the Ministry of Railways has obligated the Central Asian Railroad to utilize the Krasnovodsk--Baku rail ferry for all freight bound for the Azerbaijan, Transcaucasian, North Caucasus, Donetsk, Dnepr, Southern, Southwestern, Odessa, Lvov, Moldavian, Belorussian and Baltic Railroads. In addition, the Ashkhabad Division of the Central Asian Railroad has been authorized to use the rail ferry for freight bound for all railroads of the European USSR.

The Ministry of Railways, together with USSR Gosplan and the Ministry of the Maritime Fleet, will continue efforts to find additional sources of freight for the rail ferries running from Krasnovodsk to Baku. With that purpose in mind, the chiefs of the Central Asian and North Caucasus Railroads have been directed to do what is necessary to inform shippers of the demand for shipment via the rail ferry."

USSR Gosplan has also responded to us. Transport Department Deputy Chief V. Pavlov reported to the editorial office the following:

"At the request of USSR Gosplan, the Ministry of Railways management has further examined the question of improving the utilization of the Caspian rail ferry capacity and has directed the railroad administrations to dispatch to the ferry the quantity of railcars necessary to ensure full utilization of ferry capacity."

## PORTS AND TRANSSHIPMENT CENTERS

### YUZHNY PORT DEVELOPMENT UPDATE

Moscow VODNYY TRANSPORT in Russian 11 Jan 86 p 1

[Article by A. Volchek: "Yuzhny Port is Maturing"]

[Text] Recently, this harbor was not even on pilots' charts. But here already the first gas carrier is moored to the pier. And after some time, here is the first cargo ship. Five years passed between these two events.

The great, narrow, deep, diagonal Adzhalyk estuary has cut itself into the dry land. On its west shore, the structures of a near-port plant having its own piers have been placed. On the east shore, a unique transportation facility for the transshipment of ores, coal, and chemical fertilizers is being built and is toiling into the future.

The first stage, the coal and ore facility, is designed for processing 1.3 million tons per year and it began operating at that rate a year ago. The first ship to be processed here was the motorship "Dagomic" delivering 30,000 tons of bauxite ore from Australia.

Large oceangoing ships can be freely moored to the 380-meter long pier on which there are eleven cranes of increased lifting capacity. A powerful substation to which electrical transmission lines have been led is supplied for loading work. At the facility there are boiler and pumping stations, a fire department, and social and domestic facilities.

The pier which has been built can receive 100,000-ton, and even larger ships. In addition it can sustain an increased loading. While the usual loading per square meter is 12 tons, at Yuzhny it is 20. To provide for this, a fundamentally new kind of sheet piling with a strong concrete coating was used in the construction.

In this year the second phase of the pier, having a length of 700 meters should go into service. With the output of the facility at designed capacity, up to 6 million tons of coal and ore per year will be processed here.

The 12th Five-Year Plan does not promise to be easy for the port workers. The intense construction is being continued. Besides turning over the second stage of the ore and coal facility, work is continuing on a broad front on the facility for processing chemical cargoes. Here, ships with a cargo capacity of up to 50,000 tons will be processed and the throughput capacity of the first stage, which incidentally is planned for turn over in 1987, will be 2 million tons of phosphorites per year. Two powerful unloading machines will occupy a place on the pier. They each will have a productivity of 600 tons per hour. The further transport of the phosphorites is to be accomplished by a system of conveyer galleries and transshipment stations from which the cargo is put into closed, mechanized storages with a capacity of 700,000 tons of phosphorites.

Apart from the industrial construction, work on constructing facilities for social and cultural purposes and dwellings in the Yuzhnyy settlement is being done at an accelerated rate. In the 12th Five-Year Plan, six dwellings with a total area of 64,000 square meters, a general education school, a combine for domestic services, a pharmacy, two children's playgrounds, a sanatorium and dispensary for 100 beds, a store, and other facilities will be built.

The youngest port in the country is gathering strength. With the start up of the new pier, the annual turnover of Yuzhnyy will double and reach 14 million tons.

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PORTS AND TRANSSHIPMENT CENTERS

OFFICIAL ON NEED FOR PORT FACILITIES REPAIR, RENOVATION

Moscow VODNYI TRANSPORT in Russian 7 Dec 85 p 2

[Article by V. Nikolaychik, chief of the V/o Morstroyzagranpostavka [All-Union Association for the Delivery of Maritime Construction Equipment Abroad] Technical Operations and Capital Repairs of Shore Structures Department: "Not Everything Is Old and Worthless" under the subheading "On the Reconstruction of Berthing Structures"]

[Text] As is well known, steady operation of the maritime fleet in the transportation of exports and imports and national economic cargoes depends on the technical condition of structures on shore and, first of all, on the hydrotechnical structures which are the main elements of ports. This is why the Ministry of the Maritime fleet gives constant attention to the questions of increasing the level of the technical operation and capital restorative repairs to the port structures for maritime transport. It is enough to say that over the past 15-20 years the basic funds for port structures have grown substantially for the construction and reconstruction of cargo transshipment facilities which today, in their technical characteristics and condition, satisfy the requirements of the transport fleet.

But along with this, in individual ports, a part of the structures which were built very long ago, as a result of intense use and untimely repair, has begun to deteriorate rapidly. They require prompt restoration.

Besides this, in connection with the qualitative changes in the makeup of the fleet, with the reinforcement of it with large-tonnage ships with large dimensions and large draft, several of the berths have become obsolete. There are several reasons; namely, the absence of the necessary depths, limited support capabilities, and an insufficient length of the berthing space. Without question, such berths need reconstruction.

However, the trouble is that the questions of the timely execution of capital repairs and reconstruction of port structures is extremely complicated. On one hand, the general contractor, Mintransstroy [Ministry of Transport Construction] adopts an extremely limited program of work on capital repair which does not satisfy the requirements of the industrial sector either in volume or in schedule for completion.

On the other hand, even for those facilities which are included in the plan for capital repair, the required amounts of construction materials are not provided because of the limitation of the funds appropriated to the sector for repair and operational needs.

Therefore, repair of structures is dragged out for prolonged periods and the transshipping facilities, taken out of operation, are forced to be inactive for years.

The repair and construction organizations belonging to the shipping companies and ports, because of a small-capacity material and technical base, insufficient construction materials, and the lack of specialized floating equipment, pile-drivers, machines and mechanisms, are in no condition to carry out complicated work on capital repairs and reconstruction of fender, shore-reinforcing, and berthing structures.

An insufficient level of observation of the rules for their technical utilization also contributes to early wearing out of structures. Overloading of piers from bulk cargoes, and increased loadings during mooring of ships because of exceeding the designed speeds and approach angle are being permitted. Increasing the depths alongside the berths is allowed without taking into account the stability of the structures and without agreement on these matters with the leading basin design organizations. Because of a lack of technical means, in a number of ports timely maintenance of the designed depths in the approach zones to berths is not provided for which reduces the effectiveness of the utilization of the transport fleet and the transshipment facilities. The structure of the organization for controlling the technical operation of shore structures is in need of improvement from the lower levels to the heads of administrations.

There is an acute question of putting in order interrelationships with USSR Minrybkhhoz [Ministry of the Fishing Industry] in connection with limitations on work to maintain depths in the water areas and approach canals of ports.

There is more. The need to activate the scientific research and planning and design organizations of the industrial sector is still acute. Why? For the development of:

- reliable methods to prevent the corrosion of metallic and reinforced concrete structures,
- effective means for the struggle with ice impediments in the internal water areas of freezing ports, the approaches to them and to port land areas,
- modern instruments to monitor the overloading of piers with bulk cargoes, and other things.

What should be done to accelerate the restoration of physically worn-out and obsolete port structures and to return them rapidly to operation?

First of all, it is necessary to increase Mintransstroy's annual program for the repair of port structures to 25-30 million rubles.

Secondly, it is necessary to ask the planning body to authorize, as an exception, the release to the sector of funds for construction materials and special purpose cable products for the capital and restorative repair and reconstruction of hydrotechnical structures in amounts consistent with planning and estimating documents.

Thirdly, it is necessary to establish in the basins, specialized subdivisions including detachments for ASPTR [Emergency Salvaging Ship Repair and Underwater Technical Operations] to carry out urgent work on the repair and restoration, in the first place, of structures in emergency or unsatisfactory technical condition; and to equip these subdivisions with the necessary technical means, machines, mechanisms and equipment.

That is why, in my opinion, it is necessary to edit the proposal in the eighth section of the Plan for the Basic Directions which says: "Continue the development of ports and plants" to read: "Continue the development of ports and plants and the restoration and reconstruction of old port structures".

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END